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**OPERATIONS**  
**MILITARY TRAINING PAMPHLET**  
**No. 23**

**PART II.—THE INFANTRY DIVISION IN  
THE DEFENCE**

**1942**

**(THIS PAMPHLET CANCELS THE 1939 EDITION)**

*Prepared under the direction of  
The Chief of the Imperial General Staff*

**THE WAR OFFICE**  
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# PREFATORY NOTE

Military Training Pamphlet No. 23—Operations—is the main title of a series of pamphlets which will contain the latest ideas on subjects dealt with in Field Service Regulations, Volume II, 1935.

Pamphlets already issued are :—

Part I.—General principles, fighting troops, and their characteristics.

III.—Appreciations, orders, intercommunication, and movements.

IV.—Protection.

V.—The use of gas in the field.

VI.—Withdrawal.

VII.—Employment of air forces in direct support of the Army.

VIII.—River crossings.

IX.—The infantry division in the attack.

X.—The infantry division in the advance.

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## OPERATIONS

### MILITARY TRAINING PAMPHLET No. 23

#### PART II.—THE INFANTRY DIVISION IN THE DEFENCE

1942

#### 1. GENERAL CONSIDERATIONS

##### 1. The modern defensive battle

In the hands of a well equipped and determined enemy, the armoured fighting vehicle, working in co-operation with aircraft and airborne troops, has opened up the battlefield, and close defensive tactics alone will no longer prove effective. Anti-tank weapons have not the same ascendancy over the armoured fighting vehicle as has the machine gun over troops unprotected by armour.

The defender must be prepared for the fact that his position may be penetrated in some places, often to considerable depth; he must be prepared to be assaulted from behind by troops who have descended from the air, and from his flanks by armoured formations who have broken in on neighbouring sections of the front.

The successful conduct of a defensive battle will depend on an appreciation of the fact that, in the fluid situations which will arise, the hard and fast distinction between the attacker and the defender has disappeared. The defender must keep mobile his armoured formations and motorized reserves in order that he may rapidly convert a defensive battle into an encounter battle on ground which he knows and in circumstances favourable to himself.

Troops allotted primarily for defence must secure themselves in anti-tank localities and must be prepared to see the tide of battle flow past them. They must realize that this phase of the defensive battle is normal in modern warfare; that they must still dominate the area in which they are located; and that it is their duty, when the opportunity presents itself, to sally forth from their defences and to defeat the enemy, who is trying to reinforce and consolidate the success his armoured formations have won for him.

A commander may fight a defensive battle for various reasons; but final success can be gained *only* by returning to the offensive.



In no circumstances must there be any withdrawal in defence without definite orders to this effect from a superior commander. In default of such orders, resistance must be continued to the last man and the last round.

From an analysis of the strength and weakness of both attacker and defender, certain principles can be deduced on which the defence should be based.

## 2. The attacker

The most effective weapon in the hands of the attacker is the tank. Its armour, fire power, and mobility enable it to force or find a way through all but the most elaborate defences.

The tank, however, has limitations. It cannot cross certain obstacles until a way has been cleared for it by engineers and infantry; it is dependent on its administrative services for replenishment of ammunition and petrol; it cannot hold and consolidate the ground it has gained; and it cannot operate effectively by night unless there is moonlight, and must, in fact, during the hours of darkness, itself be protected.

The tank, therefore, loses much of its effectiveness if it can be separated from its supporting arms and services, and to effect this separation is one of the main objects of the defender.

The next most effective weapon of the attack is fire. A well equipped enemy who has had time to prepare his plans can develop a tremendous volume of fire on the front he selects for attack. The intensity of this fire will, however, slacken as stocks of ammunition are exhausted and as the attack advances into areas beyond the reach of the attacker's original dispositions. The defence must, therefore, be in depth, in order that some part of it will be beyond the range of the full weight of the enemy's initial fire plan.

The dive bomber is a powerful weapon against untried and badly protected troops. Against properly constructed defences its material effect is small, and it is itself most vulnerable to the fire of the determined defender.

Airborne troops can be projected into areas of the defence which might otherwise be considered immune, and can cause considerable dislocation and damage.

Finally, the attacker will develop his full strength only by very close co-ordination of all arms, including air, based on careful reconnaissance and planning. Such co-ordination will be most highly organized in the early stages of the attack.

It must be the aim of the defender to cause the maximum interruption to this co-ordination when the enemy is planning



and preparing for the attack, and in the later stages of the battle.

### 3. The defender

Initially, the two main weapons of the defender are obstacles and fire.

No obstacle, natural or artificial, will stop a determined and well equipped enemy; but, on the other hand, every obstacle, however trivial, places the attacker at some sort of disadvantage, and tends to canalize the path of the attack. The passage of considerable obstacles involves reconnaissance and the provision of special troops and equipment.

The extent of the frontages to be held will often make it impossible to produce a continuous belt of fire across the whole divisional front, and, in any event, the covering fire of the attacker will, either by destruction or neutralization, cause gaps in any prearranged fire scheme. Fire must therefore be concentrated to defend localities which the enemy will be forced to attack. It will often be impracticable so to site localities that they check the enemy completely on a given line; but it is essential that they should be sited to break up his advance and to force him into areas where it is possible to take progressive toll of him as he penetrates into the position.

Obstacles and fire must be closely co-ordinated. An obstacle loses much of its value if it is not covered by fire, and the value of any fire will be much enhanced if it catches the enemy when he is engaged in surmounting an obstacle.

Neither obstacles nor fire, nor the two in conjunction, will completely stop initial penetration by an attacker who is able to concentrate overwhelming fire and smoke at his point of main effort, and is prepared to make sufficient sacrifices. It will be the aim, therefore, of the defender, first to make the initial penetration as expensive as possible, and then to counter-attack the enemy when he is checked and disorganized, and to destroy him. To this end mobile reserves must be prepared and so sited that they retain complete freedom of action.

### 4. Surprise

The attacker enjoys certain advantages in the matter of surprise. He can hold assaulting troops well back, so leaving the defender in doubt where and when the blow will fall; and air reconnaissance will enable him to make a detailed survey of the defender's preparations. The latter should realize, however, that he is at a disadvantage in this respect only in so far as his organization is static and inflexible, and that within the framework of the defence there exist many opportunities to effect surprise. The attacker can be deceived by means of dummy positions and dummy minefields and



false tracks and the skilful camouflaging of genuine ones ; he can be misled by the frequent use of alternative positions and by the retention of a mobile reserve whose role he will be unable to forecast ; he can be constantly harassed by active patrolling, and his reconnoitring patrols can be ambushed and attacked wherever they appear. All these methods give the defender infinite scope to achieve surprise.

## 5. Conclusions

From the above, certain general principles emerge on which the defence should be organized :—

- i. The first essential is so to organize the defensive position that every man knows exactly what he is supposed to do.
- ii. The defence must be organized to considerable depth and to meet attack from every direction ; units and installations working far in the rear of the actual battlefield must be trained and prepared to engage airborne troops and armoured fighting vehicles.
- iii. Any obstacle intended to impose a serious check on the attacker's A.F.Vs. should be so sited as to be protected from reconnaissance and to ensure that the enemy, when he reaches it, will be to some extent disorganized.
- iv. The defender must aim at breaking down the organization of the attack. The assault must be separated from its covering fire ; infantry must be prevented from following tanks ; and tanks must be cut off from administrative vehicles carrying replenishment of petrol and ammunition. The effective defence of approaches in depth, especially of roads in a hastily organized defence, will go far to achieve these ends.
- v. The co-ordination of the attack must be upset. Small counter-attacks or surprise concentrations of fire at critical moments—just before an attack, or when carefully organized assault parties are tackling an obstacle—will have results out of all proportion to the effort expended. Timing will be all important.
- vi. Every effort must be made to wrest from the enemy the initial advantage he holds in the matter of surprise. By vigorous patrolling, he must be denied ground reconnaissance, and by use of dummy defences and alternative positions he must be genuinely mystified and misled about the defender's intentions. Alternative positions are not merely to be regarded as a last resort in battle when the best



position has become untenable—it is, in fact, a fallacy to assume that there is a best position. Alternative positions serve three purposes: by occupying them alternately for varying periods before the attack, the defender largely conceals his real intentions; when the attack develops they provide flexibility by which the defender can concentrate his resources where the threat is greatest; and they reduce casualties.

- vii. Counter-attacks must not be regarded as forlorn hopes launched to restore a situation. They are the most powerful weapon in the hands of the defender, and should be aimed at destroying the enemy while he is still suffering from the disorganization and loss he has suffered in fighting his way into the position. Timing will, again, be all-important.

In conclusion, a well-organized position is an essential foundation to the successful conduct of a defensive battle. But it is the foundation only, and the defeat of the enemy will depend mainly on the conduct of the battle.

A commander's object is therefore not only to occupy a defensive position; his intention, essentially, is to destroy any enemy who attempts to penetrate it. His plan must be drawn up to fulfil this object.

## 2. CHOICE OF A DEFENSIVE POSITION

1. The occasions on which a commander is allowed complete liberty in the choice of a defensive position, where he will await the enemy's attack, are likely to be few. He is more likely to be thrown on the defensive in battle or, for reasons outside his control, compelled to hold ground not essentially suitable for defence.

The two extremes are:—

- i. Where troops are thrown on the defensive and must hold on wherever they may happen to be.
- ii. Where a division is not in contact with the enemy and has time to prepare from the outset a co-ordinated plan of defence.

Under i. the defence plan must be built up from the bottom by successive co-ordination by higher commanders.

Under ii. the complete co-ordinated plan of defence can be prepared from the outset by the divisional commander.

There are, of course, many other types of situation which fall between these extremes.

The considerations set forth below are intended as a guide.



They are likely to be fully complied with only when some freedom of choice is possible.

The commander must first consider the object which has been given to him by the higher commander. He must dispose his forces to carry out this object.

2. If the position to be occupied has been reached as the result of previous fighting, its suitability for defence must be reviewed. Limited local offensives may be necessary to capture ground which would seriously impair the strength of the position if left in the enemy's hands. Conversely, any ground held which weakens the general defensive layout should be abandoned, though it may be held temporarily by covering troops. No withdrawal affecting units and formations on the flanks should be made without the approval of the superior commander concerned.

3. The choice of ground suitable for defence against A.F.Vs. involves two major considerations:—

- i. The existence of a complete tank obstacle, or of ground suitable for being made into such.
- ii. The general suitability of ground, in front of and behind the main tank obstacle, for the development of anti-tank localities.

River lines, if the river is of sufficient size, usually provide the best continuous tank obstacle. Railway lines, if passing through a series of cuttings and over steep embankments, often provide useful obstacles. Care must be taken in the selection of such lines to ensure that they are in fact tank obstacles, or can be made such. Maps, especially small scale maps, are deceptive in this respect, and ground reconnaissance is essential. Steep forward slopes, especially if wooded, are good tank obstacles, and are usually easy to cover with the fire of anti-tank guns, which can be concealed if employed in enfilade; some of the infantry defences, however, will then, of necessity, be on forward slopes and exposed to hostile artillery.

Where no tank obstacle exists it will be important to select ground where an obstacle can be created by linking up anti-tank localities by artificial means, or where partial obstacles exist which can be improved to provide an efficient obstacle. The effectiveness of any obstacle will be reduced if the enemy is allowed to reconnoitre it, and every effort must be made to prevent him from doing so.

Heavily wooded areas and villages lend themselves to defence against attack by tanks, and form centres of resistance which break up the attack. They have the further advantage of providing cover, especially from the air. On the other



hand, they are sure to be targets for hostile artillery and air bombardment; and blister gas persists for a long period in such areas. Small woods, and small, poorly built villages, are likely to attract heavier fire than is compensated for by the cover which they provide; such areas can, however, frequently be linked to form large anti-tank localities.

4. Few positions are without certain more or less pronounced salients. Salients are valuable in that they enable enfilade fire to be brought against any enemy attacking the front of the position to right and left; but for this same reason they are likely to receive special attention from the enemy's fire, which can the more easily be concentrated on them by reason of their prominence. Salients, therefore, usually require special measures of defence. They can generally be flanked by fire from other parts of the position.

5. It is essential, if the artillery is to exercise its full power, that it should be possible to observe the enemy's preparations and the ground over which he must advance during the earlier stages of the attack. Thus, the foremost defences must usually be at least sufficiently far in advance of the areas selected for artillery observation to ensure that these areas are not captured, and the defences blinded, as the result of a local success by the enemy.

6. The suitability of the rearward part of the position must be considered equally with that of the forward areas. The ground chosen should include localities suitable for all-round defence, good artillery positions, and room for free and concealed movement of reserves and supplies.

### 3. ORGANIZATION OF A DEFENSIVE POSITION

#### 1. Protection

It is a principle in defence that the enemy should not be allowed to approach freely a defensive position. He should be kept at a distance from it, and be made to pay for any advance close enough for the detailed reconnaissance which is a necessary preliminary to a staged attack.

Hence arrangements must be made to protect the defensive position both while it is being organized and after it has been occupied.

The troops detailed for the task of protecting the defensive position and of preventing or hampering enemy reconnaissance are known as covering troops.



Covering troops carry out their role in two main ways. They may either act offensively by mobile action against the enemy, or they may occupy a position in advance of the defensive position. On occasion these two methods may be combined.

Hitherto, in this war, opposing armies have usually refrained from occupying for prolonged periods positions in close contact, which was a distinguishing feature of the war of 1914-1918. Scope is thus afforded for the use of mobile offensive covering troops.

In the early stages of the enemy's approach, mobile covering troops will usually stay out in advance of the main position and attack the enemy columns as opportunity occurs. In this stage, covering troops will often consist of formations of all arms and will be most effective if they are provided from armoured formations. If armoured formations are not available, it will still be incumbent upon an infantry division to provide mobile covering troops. The divisional reconnaissance regiment, strengthened with both field and anti-tank artillery, will usually be the most suitable for this task.

When the enemy has approached within striking distance, it may still be possible to cover the position with mobile columns. These will not be able to stay out continuously for long periods; but from time to time they can effectively sally forth from the main defensive position and act offensively against the enemy. This method was used successfully by our forces in North Africa in front of Mersa Matruh during periods when the main armies on either side were organizing and preparing. It has also been used by the Germans in the same theatre.

Where the ground or the restricted area between the opposing forces does not give much scope for the employment of fully mechanized forces, the same method can be used by infantry. On occasion they may be supported by army tanks and anti-tank guns. They will usually require support from field artillery, which can often be given from the main position. This method was successfully employed by the garrison in Tobruk.

When suitable ground exists, and when it is necessary to conserve armoured formations, covering troops may occupy covering positions in advance of the main position. This method was employed by the opposing armies in France in the opening stages of the war. A light screen of infantry supported by artillery and anti-tank guns was put out in front of the main defensive position.



If this course is adopted, the following points should be taken into consideration.

- i. The covering position should be far enough in advance of the main position to prevent the enemy from enjoying direct observation.
- ii. The number of troops allotted for this role should be kept to the minimum. They will usually have to be found from within the division.
- iii. The covering position will consist of defended localities sited to cover main approaches; it will be an advantage if these localities can rest upon a tank obstacle. They must be protected by artificial obstacles, such as ditches or mines, if natural obstacles do not exist.
- iv. Careful arrangements must be made for the withdrawal of these troops in face of heavy attack.
- v. It is of paramount importance that troops in a covering position should not rely merely on the occupation of permanent localities. These should be supplemented by the temporary occupation of other positions at irregular intervals. Vigorous offensive patrolling is essential—both forward against enemy positions and in between defended localities.

## 2. The main defensive position

It must be accepted that some enemy may penetrate, if not right through the defensive position, at least deeply into it. The position must therefore have great depth, with the object of :—

- i. taking progressive toll of the enemy A.F.Vs. ;
- ii. preventing enemy infantry and supplies from reaching these A.F.Vs. ;
- iii. giving the defenders facilities for counter-attack, which is the basis of all defence.

## 3. Sectors

The position throughout its depth should be organized into sectors. These must be clearly delimited, and commanders, either of formations or of units, placed in command of their appropriate sectors.

These commanders will be responsible for the local defence of all troops located in their sectors and will co-ordinate their contribution to the purely local defence. Frequently, however, the troops located in the sector will have a primary role outside the sector in which they are situated. For example, tanks may have a counter-attack role, or artillery may have to fire on the



front of a neighbouring sector. Sector commanders, in framing their orders, will take care that these orders do not interfere with the primary role allotted to troops who may be located in their sector.

#### 4. Localities

The main position will consist of a system of anti-tank localities extending from the front right back to the divisional rear boundary, and will therefore embrace all troops in the division, including supporting arms, headquarters, and administrative units, all of whom must be disposed in defended localities.

It must be remembered that the modern battle is largely fought along the road systems. Defended anti-tank localities should be sited to deny the use of roads to the enemy, and will be formed by linking up such natural obstacles as woods, villages, or groups of houses. It will seldom be possible to find ground providing adequate defence against tanks for all such localities, and any that are vulnerable must be artificially strengthened by all available means, including the use of mines. Mines used in this role are for close defence; tactical minefields, on the other hand, are based on the anti-tank defensive layout, and include lanes for counter-attack by defending troops. If frontages are large, localities may not be able to support one another directly, but they must be so sited that an attack which has penetrated between two localities must come under the fire of a third. Where the front is particularly wide it may not be possible to cover with fire all ground between localities, but on no account must depth be sacrificed to achieve a continuous belt of covering fire. Instead, alternative localities must be prepared to which troops can move in order to cover with fire any gap into which the enemy may penetrate. Carrier platoons are the most suitable troops for this role.

In siting localities to cover approaches, full consideration must be given to the possibility of an enemy break-through from either flank.

Localities must be organized for all-round defence and stocked with supplies of food, ammunition, and water. The garrisons must be prepared to fight for long periods as isolated and self contained forces; it is therefore important from the point of view of command, morale, and administration that they should consist of sub-units of the size of a company or more. Localities will often include different arms. A commander must be appointed for each locality; he will be responsible for co-ordinating the part to be played by all arms in that locality's local defence.

The considerations governing the orders to be given by



sector commanders, detailed in para. 2 above, apply equally to the orders issued by commanders of localities.

As many alternative positions as time will allow will be constructed within each locality; and they must be so sited as to assist the all round defence of the locality. The objects of these alternative positions are :—

- i. to mystify the enemy about the exact position occupied at any particular time, by the occupation in rotation of all available positions;
- ii. to enable the garrison to reinforce the defences to meet a threatened attack on any part of the position, since there will seldom be as many troops in any one locality as is desirable;
- iii. to reduce casualties by enabling the defenders to move to another position.

The locality system is vulnerable to infiltration. The frontages which can be allotted to formations and units will be largely governed by their ability to hold and patrol them by night, during fog, or when the enemy makes use of smoke. Intervals between localities must be watched by patrols, and at night must be covered by the fire of light and medium machine guns firing on fixed lines.

## 5. Obstacles

In addition to the anti-tank localities which form the main layout of the defence, it will be of advantage to the defender if at least one tank obstacle covering the entire width of the position can be found. Often such an obstacle will not be found, and it will then have to be made by joining up existing anti-tank localities by ditches and mines. To obtain the greatest value from such an obstacle, the enemy must be prevented from reconnoitring it, and it should be covered by fire.

It should, therefore, normally be situated within the main position to ensure that the enemy's attack will have suffered a degree of disorganization before reaching it, and thus make it difficult to cross the obstacle without staging a fresh plan.

It is an advantage if the obstacle is so situated that it covers the bulk of the artillery positions. When so placed, the obstacle will often be under the direct fire of a number of guns, and will give protection to the artillery positions farther back.

When a defensive position has to be occupied and organized under the threat of immediate attack by enemy well equipped with tanks, the obstacle will, of necessity, have to be very much farther forward in the position to give the necessary protection to the work of preparing the defences. Even so,



anti-tank localities linked to the obstacle should be pushed out ahead of it to deny reconnaissance to the enemy and to give as much depth as possible; and a second obstacle should be created farther back in the main position.

Whenever troops are committed to defensive positions in front of an obstacle, crossing over or through the obstacle must be so arranged that supplies and reinforcements can reach the forward troops. These crossings must be strong enough to carry the anticipated reinforcements, e.g., if it is intended to use tanks on the enemy side of a river, bridges to carry the tanks must be preserved or constructed. Ferries and foot bridges may suffice on other occasions. Whatever arrangements are made for the passage of the obstacle by our own troops, careful and detailed arrangements must be made to deny these passages to the enemy if he threatens them. Permanent guards, prepared demolitions, and mines must be arranged, and explicit orders for destruction must be given to the guards. These must also be explained to the forward troops, who must realize that the destruction of crossings behind them is a temporary safeguard only and does not mean that they have been abandoned.

When, however, the obstacle is very broad and deep and will require considerable work to bridge, it may form the front edge of the foremost defended localities. In the defence of a river line, unless linear strength is very great the occupation of the "home" bank only will not prevent a resourceful enemy from crossing somewhere.

The defensive system must be designed to meet attack from the flank as well as from the front, to ensure that a break-in on a neighbouring sector will meet with organized resistance in any attempt to widen the gap. Artificial or natural tank obstacles are therefore an advantage on the flanks of each sector, in order that any penetration by enemy tanks may be localized: such obstacles, however, must not be permitted to impede the mobility of our reserves. Opportunity must also be taken to develop any tank obstacle running transversely through the position. The siting of all obstacles must be co-ordinated with the general plan of defence, in order that full consideration may be given to the movement of counter-attack troops, particularly tanks.

## **6. Reserves and counter-attack**

The counter-attack is the basis of all defence. It follows, therefore, that most careful arrangements must be made to ensure that troops are available to counter-attack. Army tanks form the most mobile reserve. In addition, infantry and anti-tank guns should be detailed for counter-attack tasks, and this point must be borne in mind in disposing troops.



Certainly these counter-attack troops must be included in defended localities and will take part in the defence of these localities if they are not required for counter-attack; but their primary task will be counter-attack, and the defended locality must be so organized that it can continue to hold, even though the counter-attack troops are removed. Furthermore, all troops in defended localities must regard themselves as potential counter-attackers whether they have been specifically detailed for a counter-attack task or not. Commanders of garrisons should always have a plan ready for reducing the garrison to a minimum for temporary defence while the remainder take the offensive.

The wider the front to be held, the more difficult it will be to make available troops for counter-attack—but the more important it will be.

To facilitate counter-attacks, a proportion of army tanks may be decentralized to forward infantry brigades. Army tanks will not be decentralized into sub-units of less than a squadron in strength.

It is important that routes through obstacles and minefields should be kept open, and be known to all counter-attack troops, as well as to the garrisons of the adjacent defended localities.

The areas in which the mobile reserves are located will be organized in the same manner as the positions further forward. Although these localities will be organized and sited primarily with a view to counter-attack, they must be able to defend themselves against attack from any direction.

## **7. Artillery**

When the main threat to the defence is from enemy tanks, the anti-tank and field artillery will form a framework of the defence and must be so disposed in localities that there is a network of anti-tank defence throughout the fighting zone. The anti-tank layout must be carefully co-ordinated with obstacles and minefields.

The allotment of anti-tank guns to troops in the fighting zone will be relative to the suitability of the ground for tank attack. Guns will be distributed to localities to give depth to the anti-tank defence; but since guns towards the rear can be reinforced by the field artillery, it should be possible to allot a higher proportion to the more advanced parts of the fighting zone.

When other anti-tank resources are inadequate, a proportion of field artillery will be allotted a primary anti-tank task; guns so allotted will be sited singly and cannot carry out their normal rôle. The divisional commander must lay down the proportion of field guns to be so employed.



In addition, all field artillery employed in their normal role must be so sited that, in the event of a break-through, they are able to cause the maximum casualties to enemy tanks. The selection of battery areas will be influenced by the general direction of tank approaches which guns must cover.

Artillery positions may themselves be included in anti-tank localities, and these may be taken into account in deciding the infantry dispositions in the area where the artillery is deployed ; but the overriding consideration in siting guns will be their anti-tank role.

### **8. Headquarters**

Headquarters must be located primarily to facilitate communications with and control over such reserves as remain in the hands of the commander. It will be an advantage if the headquarters of supporting troops are placed close to the headquarters of the troops they are supporting.

Headquarters must be concealed from the air and must be adequately protected by being included within a defended locality, since the enemy will seek to exploit success by ground and air attacks directed against centres of command. Subject to these considerations, headquarters should be sited to facilitate the provision of an efficient system of inter-communication by land and air.

### **9. Administrative units**

The location of transport and administrative units will require special consideration and will depend on facilities for concealment, for maintenance, and for protection from ground and air attack. Transport and administrative units will probably have to provide their own protection, since there will seldom be infantry available for this purpose. They should be located as far as possible within anti-tank localities capable of all-round defence. Where there is good cover and adequate room in defended localities, the retention of a portion of the unit transport forward with the fighting troops is likely to make for increased administrative efficiency. Where cover for large numbers of vehicles at wide spacing is lacking in rear areas, protection from air attack will be better obtained by wide dispersion in ragged formation under camouflage than by bunching under the available cover.

## **4. OCCUPATION OF A DEFENSIVE POSITION**

1. When a defensive position is chosen, the corps or higher commander will lay down the general defensive line and name any tactical features which are to be included in the general



plan of defence. Where a natural tank obstacle is to be incorporated in the defence, he will indicate its position in relation to the general layout of the defence. He will lay down the boundaries of lower formations, and allot such G.H.Q., and corps troops as he may consider necessary, retaining the balance as a reserve in his own hands. It will also be necessary to give instructions about the time at which the position is to be ready for occupation and whether it is likely to be temporary or prolonged.

Divisional commanders will carry out a general reconnaissance of their sectors whenever time permits. However short the time available, it will be necessary to reconnoitre, either personally or by deputy, potential tank obstacles. All commanders, if time and the tactical situation allow, will study the position they are about to occupy from the point of view of the attacker.

2. When occupying a defensive position the divisional commander will indicate the time by which it is to be ready for occupation. He will then give decisions on the following matters:—

- i. The task of the covering troops (if found from the division) and allotment of troops.
- ii. The foremost defended localities.
- iii. The position of the main obstacle in the defensive layout.
- iv. The organization into sectors and the allotment of troops to them.
- v. The general policy governing the development of defence. This includes demolitions, closing of roads and railways, and extent of digging to be undertaken.
- vi. Allotment of stores and mines.
- vii. General areas for tactical minefields, and lanes to be kept open for counter-attack.
- viii. Allotment of artillery fire for support of forward troops.
- ix. The location and rôle of the divisional mobile reserve.

3. It will be necessary to make an immediate distribution of engineer resources, which will include the allotment of divisional engineers to tasks, and the distribution of wire, mines, and any other stores which are available and may be necessary for the immediate occupation of the position.

If a prolonged defence is expected, a long term policy for the provision of engineer stores and materials must be drawn up and defence works planned.



4. Infantry brigade commanders will require to make a personal reconnaissance of their sectors. They will allot areas of responsibility to battalions and ensure that the defence is properly co-ordinated, if necessary by laying down points of junction.

The actual laying of tactical minefields is a brigade responsibility. Their detailed siting must be settled in accordance with the plan for anti-tank defence and counter-attack. Co-ordination of the anti-tank gun and minefield defences is the responsibility of the C.R.A. in consultation with infantry brigadiers and the brigadier commanding the army tank brigade. The former will usually in the first instance use the anti-tank regimental commander as his deputy. Minefields must be kept covered by small arms fire both by day and night. Medium machine guns are particularly suitable for this purpose. Detailed reports of the location of minefields must be available to armoured formations.

When time for preparation is short, brigade commanders may have to sub-allot anti-tank sub-units to battalions. The tasks to be carried out will be given to the anti-tank commander, who will then dispose the guns in consultation with battalion commanders. In any event, co-ordination of anti-tank defence between sectors, and with field artillery and minefields, will be carried out by the anti-tank regimental and battery commanders.

5. In the first instance the commanders of forward infantry battalions will arrange artillery S.O.S. fire tasks with battery commanders. As soon as possible, commanders of forward infantry brigades will co-ordinate artillery S.O.S. fire tasks with the tasks allotted to the small arms fire, and will select defensive fire tasks for the infantry; later, both S.O.S. and defensive fire tasks will be co-ordinated by the divisional commander.

6. Signals must start organizing as soon as possible the communication system both for general command and for artillery requirements. Early information about the layout of the artillery and the position of headquarters is necessary if cable routes are to be properly reconnoitred and the system planned on a sound basis.

## 5. DEVELOPMENT OF DEFENCES

1. All troops thrown on the defensive will normally entrench themselves as thoroughly as time, opportunity, and the tools and material available allow. If temporary defence only is contemplated, digging may be limited to the construction of



concealed weapon and shelter slits. Orders must be given which policy is to be followed. Once troops, including reserves, are allotted to a particular post or locality, their first task after clearing a field of fire will be to dig in on their own ground and erect some wire.

2. Concealment, both from ground and air observation, is the most likely means of obtaining surprise, and every effort must be made to obtain it.

Absolute concealment will, in fact, seldom be obtainable, and dispositions will usually be concealed from the enemy by dispersion and by a number of alternative positions, both real and dummy. For example, dummy minefields may be constructed in areas well covered by anti-tank guns, and tracks which will show up in air photographs might be made across ground which will eventually be mined.

Entrenchments larger than weapon slits are difficult to conceal, and, except in temporary defence, recourse must be had to rapid development of an extensive system by linking up posts within the defended localities by continuous trenches. This development will make it difficult for the enemy to discover the actual position of the garrisons and cause him to disperse his fire; will facilitate movement to alternative positions; and will assist control, supply, and reliefs. These connecting trenches will of necessity be shallow at first; later on they are developed. Skilful use of camouflage will prevent the positions of machine guns, anti-tank guns, and mortars being identified in the general defensive system.

It cannot be too strongly emphasized that camouflage must begin before and not after the work is tackled. A work which is begun and then camouflaged will be as obvious to enemy air observation as though no attempt had ever been made to conceal it.

3. Tracks are very visible from the air. They must not end at posts or gun positions, but must be continued through them to a permanent track. The reduction of tracks to a minimum is essential and can only be achieved by good track discipline, which will be assisted by the erection of wire fences beside the tracks. Use should be made of dummy A.F.V. tracks which pass through minefields, while every effort is made to conceal genuine tracks, or to lay dummy minefields across them.

4. Work on defences will be continuous even after the enemy is in close contact. Defences will be elaborated and improved, existing obstacles will be strengthened and fresh obstacles created and elaborated, and further communication trenches will be dug. Such work must be very carefully co-ordinated



with the main plan in order to ensure that the avenues are left open for use by counter attack troops and A.F.Vs.

5. As the defences are perfected, dispositions must be modified to avoid the enemy's artillery concentrations and air bombardment, which, as his knowledge of our defences improves, will become increasingly effective.

In protracted defence full use of elaborate trench systems must be made, to disperse the garrisons of defended localities and to provide alternative positions for all posts.

6. Steps will be taken to provide cover for the garrison of defensive systems, firstly from the weather, and, secondly, from hostile shelling. Full protection against heavy bombardment can be given only by mined dugouts. Mined dugouts, which should not be used in forward areas, must have sufficient means of egress to allow the defenders time to man their fire positions to meet an assault. The efficiency of camouflage schemes will be tested by direct observation from the air and by air photographs, not only during the construction of the work, but at frequent intervals afterwards in order to show how the work is affected by the growth or decay of vegetation or by other causes.

7. The provision of a system of roads and tracks to all parts of the position must be begun early and progressively improved. The general layout should be decided by the divisional staff to ensure co-ordination with existing roads and traffic control circuits and to secure economy of effort in construction. Some degree of centralized control will continue to be necessary, to enable traffic to be diverted when parts of the system of communication are closed by enemy artillery or air bombardment. Subsequently the provision of tramways will greatly reduce the work of bringing up ammunition and stores.

8. Protracted defence is trying to the health, morale, and discipline of the troops, who must, therefore, be relieved as frequently as possible for rest and training under favourable conditions. Infantry and artillery in the same sectors should not both be relieved at the same time.

9. Sanitation and other administrative measures for the comfort of the troops will require special consideration.

## 6. CONDUCT OF THE DEFENCE

1. Every commander, when he has issued orders for the occupation of the defensive position, will, in devoting his attention to the way in which he proposes to fight the battle,



bear in mind the object of the defender—to destroy any enemy who may attack him. For a protracted defence his plan should be issued in the form of a defence scheme, which will be amended as the position is further developed.

2. Before the attack is launched, the defender must endeavour by all available means to discover the enemy's intentions and the time and place of his attack. To supplement the information obtained by air photography and reconnaissance, ground observation will be systematically organized and recorded, and the enemy lines will be kept under constant and minute scrutiny. It is of special importance to locate any new work that may give indication of the enemy's intention. Raids may have to be undertaken to discover whether the enemy is preparing to attack, or to obtain important information that cannot be obtained otherwise.

Active and constant patrolling will be carried out, and any indication of attack, such as the appearance of reconnaissance parties, movement of troops, and registration of artillery, will be carefully watched for, reported, and recorded. Interference with the enemy's preliminary preparation for the attack, and his advance to and assembly in forming-up positions, will be effected by means of harassing and defensive fire by artillery and machine guns: a large proportion of guns should be allotted to this task. Full use will be made of the range of some of the artillery firing from temporary forward positions. On occasion, well timed local counter-attacks may be most effective.

3. Covering troops will carry out constant reconnaissance up to a forward line which may be defined for them by the divisional commander; they will keep a close watch on all bodies of enemy within that area, will observe all approaches by which the enemy might advance, and will examine all localities in which the enemy might conceal his reconnoitring detachments or which he might occupy preparatory to attack. A proportion of mobile troops, which should be withdrawn before the attack is launched, may be allotted from time to time for this purpose. Standing patrols, which can conceal themselves and see without being seen, are as a rule more effective than ordinary reconnaissance patrols; but, if the frontage to be watched is wide, or the country enclosed, it may not be possible to find sufficient standing patrols to give adequate protection. By night, the duty of patrolling will fall chiefly on the infantry.

A considerable measure of surprise will be achieved if the covering troops are protected by an effective tank obstacle and can be given such an appearance of strength that the



enemy is compelled to mount a major attack against them. By this means the defensive organization in rear is screened and the location of the forward edge of the main position remains unknown to the enemy. Covering troops cannot, however, offer adequate resistance to a major attack and should be withdrawn when such an attack is about to be launched. The divisional commander will give the permissive order for their withdrawal. After the covering troops have been withdrawn, information about the enemy's intentions will be obtained by patrols.

4. When the attack against the defensive position begins, it will be met by the fire of all arms on a prearranged plan.

A portion of the artillery will continue throughout to bring fire on to the enemy's forming-up position, with a view to preventing the support of the enemy's forward units by successive infantry reinforcements. As many guns as can be usefully employed on counter-battery work will engage the enemy's guns, to prevent the neutralization of the fire power of the defence.

5. Once the attack is launched, bodies of enemy may succeed in penetrating the defensive position by infiltrating between the defended localities. Enemy infantry must be prevented from joining up with their A.F.Vs. by the fire of the defenders, and by counter-attacks delivered from localities well forward in the defensive system.

The farther the enemy penetration the greater must be the casualties inflicted on him by successive localities, until, by the time the attack has reached the main tank obstacle, it will have suffered severe disorganization. This is the most critical stage of the battle, and every effort must be made to destroy enemy units, especially specialist troops such as engineers, which may attempt to join A.F.Vs., or infantry which have reached the main obstacle. The nearest commander with reserves has now an excellent opportunity to deliver a counter-attack to destroy the enemy. Since there may be a number of enemy A.F.Vs. still undestroyed, these must be counter-attacked by our own tanks. For this reason a proportion of army tanks should be placed under command of brigade commanders in the main fighting zone. The primary object of all counter-attacks must be to destroy the enemy when the momentum of his attack has been lost and his units are in the maximum state of disorganization.

Surprise is the main factor in any counter-attack. To ensure the rapid and prompt delivery of a counter-attack, orders for action to be taken under various circumstances must be given beforehand in considerable detail, and all units



detailed to carry them out must study and co-relate their action with reference to the ground.

6. Should the enemy succeed in crossing the main obstacle, prompt and immediate counter-attacks must be launched by units of the divisional mobile reserve. Orders for the launching of such attacks will be the direct responsibility of the divisional commander.

7. Occasions may arise in which the enemy realizes that the capture of the position by infiltration methods as outlined in para. 5 is impossible. He will then probably attempt to capture the position by concentrating on each locality in turn until it has been overrun. Once the enemy has succeeded in consolidating a locality and has placed machine guns and anti-tank guns in position to defend the ground which he has gained, it will be necessary to support counter-attacks with carefully planned fire. But the more quickly it can be organized and the less time the enemy is given, the greater will be the chance of success. Nice judgment will therefore be required on the part of the commander on the spot to determine whether a counter-attack can be put in at once, or whether it must be delayed to arrange supporting fire from sources not immediately under his command.

The position reached by the enemy will determine which troops should be used for a counter-attack.

If the enemy has penetrated the area held by a forward brigade it will be essential to maintain a secure hold upon rear localities in the fighting zone. Troops for the counter-attack will then have to be found from flanking units or from sources outside the division.

8. In the planning of counter-attacks, careful consideration must be given to the forming-up places and the lines of approach to be used by the troops taking part. Suitable avenues must exist through the minefields and anti-tank areas. Full consideration must be given to this problem when the defensive system is first organized. A counter-attack launched from the shoulders of the salient formed by the enemy's penetration will often be most effective.

9. If the defence has been successfully conducted on the principles outlined above, nightfall will find a number of defended localities still holding out in an area through which enemy tanks have passed and in which infantry and other arms are endeavouring to consolidate. Defended localities still garrisoned must not be regarded only as islands past which the attack may continue to flow; they should become harbours from which offensive action can be launched. The



defender must now leave his anti-tank localities and, with the advantage he enjoys from his knowledge of the ground, must dominate the area, preparing the way for counter-attacks launched by mobile formations under orders of higher command. Infantry, artillery, and engineers must be attacked; tanks which are harbouring for the night must be hunted down and destroyed; and transport which will be endeavouring to move forward with replenishment of petrol and ammunition must be intercepted and destroyed.

The conduct of such operations gives great scope to the dash and initiative of junior commanders.

## 7. INFANTRY IN THE DEFENCE

1. The dominating characteristic of infantry in the defence must remain active aggressiveness applied with cunning and resolution.

The tasks of infantry in defence are:—

- i. Offensive patrolling to prevent close reconnaissance by the enemy and to hamper his preparations for attack.
- ii. To construct and defend by fire the anti-tank localities in which will be sited the principal weapons of the defence.
- iii. To destroy by fire or counter-attack any enemy who may attempt to penetrate the position.

2. The importance of bold offensive patrolling can scarcely be exaggerated. Provided that it is done skilfully it has a stimulating effect on the morale of the defending troops and a deterrent effect on their opponents out of all proportion to the numbers involved.

Successful patrolling enables the defenders to retain a local initiative which goes far to offset the advantages usually enjoyed by an attacker. Strong fighting patrols will be employed to obtain information of enemy positions and movements, and to destroy enemy patrols which may try to reconnoitre the defensive positions. In addition, patrols will be necessary in fog and at night to watch gaps between defended localities.

3. Infantry are responsible for the siting, camouflage, and construction of their defensive works and obstacles, including the erection of wire entanglements, clearance of the field of fire, and the laying of anti-tank mines. Good preparation and organization of work in a definite plan are essential



to obtain good results. Engineer assistance and advice will sometimes be available.

4. Within defended localities light machine guns will be given arcs of fire covering their localities. Concealment both from ground and air is of the utmost importance; guns which are defiladed and protected from the front will be given arcs of fire to ensure that, should one gun go out of action, there is another covering the same, or almost the same, ground from a different position. Alternative platoon positions must be available. For both rifle and light machine guns a long field of fire is not essential; a field of fire of 100 to 150 yards will suffice. Positions are usually disclosed by unnecessary movement. This must be avoided.

Positions on reverse slopes which have such a field of fire offer opportunities for concealment and surprise; at the same time, arrangements must be made to observe ground defiladed from the defenders which might be used as a forming-up place by the enemy.

5. In allotting garrisons to defended localities it is important to ensure that effective command and administration of sub-units can be exercised. The temptation to space light automatic weapons equally round the perimeter of a locality must be resisted.

It is also important that the garrisons of defended localities should know intimately, by day and night, the ground within and around their positions, and the best covered approaches to neighbouring localities.

All infantry in turn should, therefore, be employed at least in patrolling between localities. Such employment will assist in cultivating an energetic and mobile attitude of mind, will prevent the lowering of morale often engendered among troops who are kept penned within positions, and will facilitate local counter-attacks.

6. Mortars may be used in the defence to support counter-attacks. In addition, they may be included in the fire plan of the defence to give S.O.S. fire on some part of the front which cannot be adequately covered by other weapons; or they may be used for other defensive fire tasks when sited in forward localities. Mortars will be dug in and, if previous registration has been carried out, can fire on fixed lines in darkness, smoke, or fog.

7. Anti-tank rifles should usually be sited in defilade and should cover likely tank approaches. They should be readily available to assist in the destruction of tanks that may be immobilized by mines.



8. The carrier platoon comprises a most valuable source of mobile fire power in the hand of the battalion commander. If it is committed to permanent dispositions in a prolonged defence, its value is largely wasted. It should, therefore, usually be kept in reserve to support immediate counter-attacks.

When localities are too far apart to give each other mutual support, a portion of the carrier platoon may be detailed to be ready to take up temporary positions to cover the gaps between localities. Carriers can be sent out or withdrawn as the situation demands.

To enable it to make the best use of its mobility and fire power, it is essential that the whole carrier platoon should know intimately the ground within the battalion area and on its flanks. Hence active reconnaissance must be carried out by all crews to ensure they know the best covered approaches, good fire positions, and lanes between minefields within the defensive position.

Each defended locality should be so organized that the bulk of the garrison can, if opportunity offers, be employed in counter-attack. The risks incurred in temporarily leaving a small skeleton garrison are considerably less than the risks incurred by a passive defence penned within the confines of a defended locality.

9. Counter-attacks with army tanks will normally be carried out by infantry from those localities in which the army tanks are placed. Counter-attacks in co-operation with army tanks will be carried out as laid down in Military Training Pamphlet No. 23, Part IX: "The Infantry Division in the Attack." It is essential that commanders of infantry detailed for this role should maintain the closest liaison with the commanders of the army tanks with whom they will be required to work. Detailed plans must be prepared to deal with certain situations that may arise. These will necessitate a very careful reconnaissance of the ground over which the attack will be launched, and a thorough knowledge by all junior leaders of the location of minefields and other obstacles in their areas.

10. All infantry when on the defensive will be prepared by night to act aggressively against enemy who have established themselves within the defensive system. Such enemy troops may include A.F.Vs. as well as infantry. Action should be taken in the form of strong fighting patrols, whose duty it will be so to harry the enemy that he is given no rest. The intimate knowledge which the defender will have of the ground over which he will operate will give such patrols



an immense superiority over the enemy, and they should be capable of inflicting severe casualties with little loss to themselves.

## **8. MEDIUM MACHINE GUNS IN THE DEFENCE**

1. The main task of medium machine guns in the defence will be to take toll of enemy unarmoured troops who may penetrate between defended localities. Their long range is suited to this task.

Special tasks may include :—

- i. Harassing and defensive fire, which will be carried out by guns sited in forward localities.
- ii. To support local counter-attacks.
- iii. To support deliberate counter-attacks.

2. Guns will be sited within defended localities and full use made of their long range. All guns will have a subsidiary role of assisting in the immediate defence of their own locality. This role must not be allowed, except in cases of extreme urgency, to interfere with the primary task.

## **9. FIELD AND MEDIUM ARTILLERY IN THE DEFENCE**

1. Artillery is mainly a weapon of attack. Artillery in the defence should therefore be used boldly and, above all, aggressively. Greater service will, as a rule, be rendered to a defensive operation by smashing an enemy attack before it starts than in any subsequent phase after the attack has been launched.

2. The main tasks of artillery in defence are :—

- i. To harass and delay the enemy's approach and preparations for the attack.
- ii. To interfere with the attack by causing casualties ; by disorganizing enemy headquarters and units whilst forming up for the attack ; and by engaging assaulting troops and so assisting the occupants of the foremost defended localities to break up the attack.



iii. To prevent the hostile artillery from neutralizing the weapons of the defence, particularly the machine guns and anti-tank weapons.

iv. To give depth to the anti-tank defence.

3. The best means of defence against infantry assault are direct fire from automatic weapons and, against A.F.Vs., direct fire from anti-tank and field guns. Indirect fire from artillery, though a useful adjunct, is not a primary means of stopping an attack; nor will there normally be sufficient guns available to cover more than a small portion of the front. In principle, therefore, artillery should be used for tasks which cannot be carried out by direct fire weapons.

Artillery fire is most effective when applied with intensity on selected areas—such as places where the enemy is forming up.

To enable fire to be thus concentrated on any defined part of the front, control should normally be vested in the C.R.A.

Decentralization should only be resorted to in order to save time in the early stages of a hurried occupation of a defensive position: in such circumstances the C.R.A. will reassume control at the first opportunity.

4. Before the defensive battle is joined, artillery, firing from temporary positions, must be used aggressively to hamper the enemy's preparations. Enemy forming-up places, communications, and reconnaissance parties should be engaged whenever opportunity offers.

5. An artillery defensive fire plan is essential. The object of this defensive fire will be to cause casualties to the enemy's attacking forces, and to disorganize headquarters and units both when forming up and when actually assaulting. When the attack begins, the artillery must be prepared to put down fire on parts of the front which, owing to the ground, it is not possible to cover by small arms fire. Such fire will generally be controlled by direct observation from O.Ps.

6. Predicted fire must, however, be arranged for use either at night, in fog, or when the enemy uses smoke. Fire of this nature should again be concentrated chiefly on areas which the small arms fire cannot reach, and may include not only dead ground in front of forward localities, but also likely enemy assembly positions, communications, defiles, and headquarters.

Thus each battery will have a number of alternative tasks; and concentrations of artillery can be directed within about five



to ten minutes to any task either before the attack, if information is received that the enemy is assembling, or after the attack if it is desired to engage his reserves. Authority to order these concentrations will be vested in the infantry brigade commander unless contrary orders are issued. It will, however, often be necessary for the divisional commander to place some limit on ammunition expenditure. In principle, fire on these defensive fire tasks should be intense and concentrated. Orders regarding ammunition, rate of fire, and duration of the concentration can be issued either beforehand or at the time, according to the circumstances.

7. In addition to the above arrangements, a plan must be made to bring down artillery fire immediately if the enemy makes a sudden attack. For this purpose, the most suitable of the areas selected for defensive fire will be called "S.O.S. tasks." Fire on these tasks will be called for by the forward company commanders either by rocket or by signal messages. S.O.S. fire will be called for only when the enemy is actually attacking, and not when he is reported to be assembling for the attack. Each artillery troop can have only one S.O.S. task at one time, though tasks can be changed to suit changed conditions. All orders, including ammunition, rate of fire, and duration of fire, must be given beforehand.

The ground will normally be the deciding factor in selecting S.O.S. tasks. If there are areas which are dead to small arms fire close to the forward localities, and cannot be covered by mortars, these areas should be selected. On the other hand, if the whole front can be covered by automatics, it will be advisable for the artillery to engage areas farther back, thus catching the enemy when he is likely to be in less extended formations and giving depth to the fire of the defence. No attempt should be made to extend artillery fire thinly across the front. It must be sufficiently concentrated to ensure that it is effective. The maximum area for one battery task is about 250 yards by 80 yards.

Guns will always be kept laid on these S.O.S. lines when not otherwise engaged, and sentries posted to watch for S.O.S. rockets.

S.O.S. tasks may on occasion be required in places that are invisible from O.Ps. If the assault takes place during daylight, orders must be given whether the artillery is to fire on its S.O.S. lines or to engage by observed fire the enemy which can be seen from O.Ps. The task table must therefore clearly state whether the S.O.S. task is to be engaged in all circumstances, or only when observation is impossible.



8. When the enemy attack has been launched the artillery will have two main tasks :—

- i. To engage enemy infantry who have penetrated the defended localities.
- ii. To support counter-attacks.

Unobserved fire must never be put down in rear of the original forward localities without permission from the sector commander. Fire will, therefore, mainly be by observation, and will be directed against the enemy infantry. It is essential that artillery O.Ps. should have been sited and prepared in depth to deal with this situation.

9. The enemy will probably use his artillery to neutralize our automatic weapons and anti-tank guns during the attack. Counter battery fire is, therefore, extremely important in defence and is an integral part of the artillery fire plan in all the phases discussed above. The amount of artillery which can usefully be employed on counter battery tasks will depend upon the amount of information and air observation available.

When possible, counter battery fire is best centralized under the C.C.R.A., who will normally use the corps artillery for this purpose. The divisional artilleries in these circumstances will be free for other tasks.

10. Artillery firing indirect is not very effective against A.F.Vs. unless they are congested in an assembly area or defile; and indirect fire should not normally be used against A.F.Vs. when there is danger of hitting our own infantry.

Direct fire from field guns at short ranges is, on the other hand, very effective against A.F.Vs., and field guns should always be so sited that they have a good field of fire over open sights. The forward troops should link up with the tasks of the anti-tank guns. Guns *should* engage A.F.Vs. over open sights at ranges under 1,000 yards, whether or not there is danger to our own troops.

11. It will often be imperative to site a proportion of the field artillery exclusively for an anti-tank role. The divisional commander must lay down the proportion to be used in this role, bearing in mind that artillery so detailed will not be available for use in the normal role.

If field artillery is employed for this task, it should not be sited within the most forward localities—which in this circumstance should be provided with a greater proportion of anti-tank guns—but in localities farther back in the fighting zone.



## 10. ANTI-TANK GUNS IN THE DEFENCE

1. Anti-tank guns are direct fire weapons, whose main object is the destruction of enemy A.F.Vs. Since they are vulnerable to infantry action, they should be sited within defended localities to cover likely approaches into the defensive position. As anti-tank guns form only part of the general defence, their allotment must be co-related to the ground and to any obstacle, whether natural or artificial, which exists. Guns will be placed under the command of brigade commanders, who will sub-allot them to locality commanders, under whose orders they will fight the defensive battle.

2. Guns should, whenever possible, be sited to fire from defiladed positions. They will thus not only be easier to conceal, but their flashes will be less readily observed. Their fire is also likely to be more effective from such positions, since A.F.Vs. are more vulnerable to fire at the sides than in front. The importance of concealment and camouflage cannot be overstressed.

Once a gun has been located it is the German practice to stage an immediate encircling movement with other tanks in order to destroy it, or the detachment, by fire. To counter such action it is essential that the guns should be sited in mutual support of one another, and that alternative positions should be reconnoitred.

In order to achieve the maximum degree of damage and surprise, it is necessary to withhold fire until enemy A.F.Vs. are within 500 yards. The aim of every gun detachment should thus be "one shot—one tank."

3. If enough guns are available, some guns should be allotted to the divisional mobile reserve. Owing to the speed at which a tank attack may develop, this reserve should be placed in localities selected to cover the main obstacle, with alternative positions prepared and routes to them reconnoitred.

## 11. LIGHT ANTI-AIRCRAFT IN THE DEFENCE

1. Defence against air attack comprises the protection of troops and material by concealment and dispersion as well as active measures of protection by anti-aircraft artillery and small arms fire.

2. The divisional commander must include in his orders the distribution of the light anti-aircraft artillery throughout the defensive area, the most probable tasks being the defence



of headquarters and administrative areas and any defiles in the defensive area.

Light anti-aircraft guns will seldom be available for use in the most forward localities. Units and formations must therefore provide defence against low-flying attacks by the fire of their own rifles and light machine guns, assisted by such light anti-aircraft guns as it may be possible to allot for the purpose.

Definite orders must be issued whether or not fire is to be opened against hostile aircraft, since the opening of fire may give away to a hostile air observer the disposition of the defence.

3. Light anti-aircraft guns are effective weapons against tanks, although they are very vulnerable owing to the difficulty of concealment. Except in an emergency they will not, therefore, be sited in a primary anti-tank role. Consideration will, however, be given to their value in the anti-tank layout of the sector in which they are sited, on the basis that in the selection of positions the anti-tank role will normally be secondary to the primary one against aircraft.

## 12. ARMY TANKS IN THE DEFENCE

1. Full advantage can only be taken of the speed, armour, and fire power of army tanks if they are used in an offensive role. In the defence, therefore, they will be used to counter-attack.

2. Surprise, obtained by concealment of the direction of attack and speed in delivery, is the main essential for a successful counter-attack. If tanks are to strike from a flank, and strike quickly, it follows that they must be well forward and must be under the orders of the commander on the spot. Hence it may frequently be desirable to place some tanks under the command of a forward brigade commander. These should not be less than one squadron and will rarely exceed one battalion.

The remainder of the army tanks form part of the mobile reserve under the divisional commander, and should be located well back in the fighting zone.

To ensure local protection at night and concealment, army tanks may have to be dispersed in defended localities; but for actual operations they will not be sub-divided below squadrons. Though troops of army tanks may be tactically dispersed, their wireless communications enable their squadron commander to fight them as a squadron in a controlled and co-ordinated battle.



3. When the tank obstacle is within the main position it will often be a difficult problem to decide whether army tanks should be allotted to a forward brigade so that they may be available to counter-attack in front of the obstacle.

The two chief considerations to take into account are :—

- i. The depth of the area between the obstacle and the foremost defended localities. The greater the depth, the more likely the enemy will be to use A.F.Vs. to gain access to the obstacle, which in turn makes it more desirable to support forward troops with A.F.Vs.
- ii. The nature of the ground. Tanks should only be put forward of the obstacle in ground where they can be concealed and where defiladed avenues of approach for flanking counter-attacks can be found.

Frequently it will be found necessary to allot tanks to forward brigades in the early stages of the development of a defensive position, and to withdraw them when artificial obstacles and minefields have been extended. Army tanks allotted to forward brigades should usually be put in localities towards the rear of the brigade sector. They will, where possible, select alternative hull down positions, flanking or covering the gaps between localities. Until required to operate they will remain under cover in their defended localities, moving out to battle positions after the attack has started and the enemy line of advance is known.

The tasks of artillery, with a primary anti-tank role, must be co-ordinated with those of army tanks sub-allotted to forward brigades. The responsibility for covering certain lines of advance within the area of the defended localities may, on occasion, be the task of one or other, and not necessarily both, of these arms.

4. Army tanks, forming part of the mobile reserve, may or may not be behind the main obstacle, according to the latter's position within the defensive layout. If behind the main obstacle, they must be located in relation to the crossing places that they will use in their counter-attack. With large obstacles, crossing places assume great importance, and strong bridgeheads in the form of defended localities will be required to cover them.

5. Arrangements must be made for closing gaps in obstacles through which tanks cross. If the obstacle is a river, heavy tanks may require class 40 bridges and a cast iron demolition plan must be prepared for these. Bridges over and gaps through obstacles are defiles that need careful anti-aircraft protection.



6. To enable rapid counter-attacks to be launched by army tanks, all tank commanders, down to crew commanders, should take every opportunity of studying the ground over which they may have to operate; and they must have a thorough knowledge of all obstacles, both natural and artificial, which form the defensive layout. Particular attention must be paid to routes through the minefields, which must be reconnoitred in detail. Gaps in minefields consisting of dummy mines will often be an effective way of obtaining surprise in the direction of the counter-attack. Tank commanders should liaise closely with commanders of infantry with whom they may have to operate, and rehearsals of likely operations should, whenever possible, be carried out. If operations are rehearsed, it must be remembered that there is an acute danger of tracks disclosing projected counter-attack plans.

7. When tanks counter-attack within the position, it will be important for infantry to take full advantage of the opportunity thus afforded to regain positions which have been lost: not only for the sake of regaining defended localities but also to ensure command of the battlefield, in order that our own tank casualties can be recovered and those of the enemy destroyed. Where they are available, infantry reserves should accompany tanks counter-attacking; but if mobile reserves are not immediately available, infantry from flanking or reserve localities must send parties to make sure of the gains of their tanks. Assault parties of engineers should be detailed to accompany counter-attack troops to destroy enemy tanks which have become casualties.

8. Occasions may arise when a bold use of army tanks in anticipation of attack may have a decisive effect.

These are most likely to be found when the enemy stays his advance short of our main positions, and presses forward his preparations for attack without putting down mines and making anti-tank obstacles.

Good information of the progress of the enemy's preparations and a knowledge of the ground previously gained may make it possible to launch a counter-attack against the enemy, and to surprise him at a time when he is forming up for his attack.

### **13. DIVISIONAL RECONNAISSANCE REGIMENT IN THE DEFENCE**

1. In the absence of armoured formations, covering troops will have to be found from within the resources of the infantry division. The divisional reconnaissance regiment, strengthened with both field and anti-tank artillery, will usually be the most



suitable body to cover the preparation and occupation of the main position. Later it may accompany mobile columns sallying forth from the main position to gain information, hamper the enemy's approach, and prevent his reconnaissance elements from gaining information.

2. When it is not employed in the role of covering troops, the divisional reconnaissance regiment will be detailed as mobile reserve. In this role it may be required to carry out any of the following tasks :—

- i. To protect a flank.
- ii. When infantry is not available, in conjunction with army tanks, to carry out counter-attacks against enemy infantry.
- iii. To carry out battle patrols to investigate the situation on any part of the front.
- iv. To act offensively against an airborne attack on rear areas.
- v. To protect and escort the administrative units or transport if there is danger from parachute troops.

3. Once the divisional reconnaissance regiment has been drawn into mobile reserve it may, as indicated in para. 2, have to be employed in a variety of directions. It is important, therefore, that it should undertake an extensive reconnaissance, not only within the divisional area, but also to the flanks and behind the divisional rear boundary, to ensure a thorough knowledge of all the ground over which it may have to act.

#### 14. ENGINEERS IN THE DEFENCE

1. When a defensive position is being taken up there will always be more work on which engineers can usefully be employed than there are engineers available to carry it out. To ensure that the engineers are used to the best advantage it is essential that the commander concerned should give his senior engineer officer early information of the position to be taken up, of the plan of defence, and of the priority of work, in order that the necessary reconnaissance may be carried out and stores accumulated as soon as possible.

In the hasty occupation of a position it may sometimes be advisable, in the first instance, to allot engineer units to definite sectors, corresponding with those allotted to infantry brigades. The sooner, however, a definite programme of engineer work can be laid down, the better will be the value obtained from the proper use of the special knowledge and equipment of



engineers; and, as soon as the engineer requirements are clearly established, engineers should work under the centralized control of the C.R.E.

2. The following are the types of work on which the engineers are normally employed when preparing the defensive position :—

- i. Construction of tank obstacles.
- ii. Demolitions.
- iii. Fortification of villages.
- iv. Improvement of communications and water supply.
- v. Camouflage outside the scope of other arms.
- vi. Construction of reinforced concrete defences, emplacements, and shelters.
- vii. Construction of dug-outs.
- viii. Production and supply of engineer stores.
- ix. Destruction of booby traps and delay action mines.

3. During the defensive battle the engineers may perform the following offensive roles :—

- i. With mobile columns in advance of the main position, laying of booby traps and delay action mines.
- ii. With the covering force for last minute demolition.
- iii. With infantry patrols when their tasks may include destruction of enemy works or communications.
- iv. To destroy enemy tank casualties in counter-attack.

4. Engineer units may be required to defend the work on which they are engaged, or their positions when at rest. They are not armed, like infantry, for offensive action, and should be used in this way only under exceptional circumstances, since they are specialist troops and difficult to replace.

## 15. SIGNALS IN THE DEFENCE

1. The scale of signal communications in defence depends upon the time available for preparation. It may vary from despatch riders and wireless, in a very hastily occupied position, to a system well provided with line telegraphy and telephony throughout. Concurrently with providing the general system for command, an early and important duty of signals should be to arrange for artillery requirements, in order that the fire of the artillery may be controlled and concentrated with the



greatest possible flexibility. The efficient performance of the task of signals is therefore possible only if very early information is given them on the position of headquarters and the layout of the artillery.

2. When a proportion of the force is held in reserve for a counter-offensive, a suitable proportion of signals should be held in reserve for it.

3. As time permits, the signal system will be improved by the organization of alternative methods (e.g., the establishment of stations under cover), the marking of routes for orderlies, and the protection of cables by burying to prevent damage by traffic or shell fire.

4. As the defensive battle develops, the enemy will be equipped with means of overhearing telegraph and telephone traffic on cable lines in front of divisional headquarters. When the enemy is considered to be in a position to carry out such interception, line telegraph methods within divisional areas will be limited to those lines which can by technical means be rendered immune from overhearing, and instructions will be issued limiting the use of the telephone.

5. The use of wireless is at all times liable to be overheard by the enemy. It must be remembered that if a wireless station operates from one position for any length of time its position can be plotted by direction-finding methods. Wireless silence should be enforced as far as possible, but, if wireless has to be used, frequent changes in frequency and call signs, and the use of code words to denote a required action, must be employed.

## 16. GAS IN THE DEFENCE

1. If restrictions on the employment of gas have been removed as a result of its prior use by the enemy, gas may be of considerable value in the defence, provided that its use is co-ordinated with the other defensive measures.

Its power of causing casualties, of harassing, and of imposing delay may be used both before and during the attack.

The harassing effect of gas is particularly effective against troops of whom a sustained physical effort is required. Generally speaking, the attacker may be expected to be the more vulnerable in this respect.

For causing casualties, blister or choking gases are required; for harassing, use may be made of blister, choking, nose, or tear gases; while for imposing delay by contaminating ground, the blister gases only are of use.



2. As a form of defensive fire a choking gas attack by mortars, by rockets, or by other C.W. projectiles may be extremely effective. Ideally, the wind should be blowing from the defence, but it may sometimes be better to accept the disadvantage of making the defenders wear their respirators than to lose a good opportunity of causing casualties among the assembled enemy, and of forcing them to put on their respirators.

3. Blister gas may be used against areas of observation, forming-up areas, headquarters, or other important centres and localities in order to render their occupation possible only at the risk of casualties, or with precautions which will reduce the fighting value of the occupants. This use of blister gas will not prevent a determined enemy from traversing contaminated ground. Its greatest effect will usually result from its use in defiles or in conjunction with obstacles and demolitions, for which purpose it may be applied by ground bombs or gas mines placed before the arrival of the enemy ; or it may be released by artillery shell, air bombs, or the projectiles used by C.W. troops. Artillery shell is uneconomical for ground contamination. Its primary role is anti-personnel.

4. Gas shell may be used with effect in counter battery fire. Conditions will vary, but a proportion of tear and blister gas shells included in H.E. bombardment of hostile batteries will add to the neutralizing effect and may cause casualties by direct contamination of personnel.

5. Gas spray is primarily an anti-personnel weapon ; opportunities for its use may occur against marching columns on roads, and against troops in bivouac or assembled in the open. Since a successful spray attack does not cause immediate casualties, and, consequently, will not stop a determined enemy, it follows that the enemy's reserve formations and rearward echelons may form the most profitable targets for gas spray, as casualties among them will adversely affect the maintenance of the momentum of his attack.

6. Arrangements must be made to counter the effects of gas used by the enemy to contaminate ground. This contamination may be caused by liquid blister gas or by vapour concentration, which will be particularly dangerous in localities where vapour tends to persist. A careful estimate of the probable effects of the weather and ground upon the behaviour of gas will therefore be essential. Among the measures to be considered in anticipation of such attacks will be readjustments by means of alternative positions ; the allotment of anti-gas



clothing and equipment ; and arrangements for the relief and re-clothing of contaminated troops.

Any considerable reorganization of the position will be carried out only on the orders of higher commanders ; but every commander may order a move so long as it does not prejudice the execution of the task allotted to him.

## 17. AIRCRAFT IN THE DEFENCE

1. Before the enemy commits himself to an attack it is probable that he will try to establish some degree of local air superiority. This factor is likely to affect materially the use of aircraft in the defence, and it may be necessary to make arrangements for fighters to protect reconnaissances and offensive sorties.

2. Before the attack, reconnaissance will be directed to discover the enemy's preparations and intentions, and bombing and fighter attacks will be concentrated on targets whose destruction will hamper the enemy's arrangements.

It will usually be advisable to omit attacks on located enemy headquarters until the attack is actually launched, since premature attacks may merely result in a change of headquarters.

3. Once the attack has been launched it will be of primary importance to discover where the enemy is making his main effort, and whether he has succeeded in penetrating the position at any place. Once a penetration has been located all available aircraft should be concentrated to attack forces advancing into the gap.

4. The control of air support will usually be retained by a higher formation.

A division may be allotted :—

- i. Reconnaissance sorties.
- ii. Artillery reconnaissance sorties.
- iii. One or more tentacles for communication with the Army Air Support Control.

5. In addition to reporting movements of the enemy, reconnaissance sorties in battle may be required to report localities which are still in our hands, though surrounded by the enemy.

6. When tentacles are allotted to a division, one should be allotted to the covering troops as long as they are able to remain out in advance of the main position.



Once these have been withdrawn, tentacles may be allotted to forward infantry brigades.

There will rarely be enough tentacles to allot to all forward brigades, and such as are available should usually be allotted to brigades on the flanks of likely enemy avenues of approach ; in the event of enemy penetration, these will probably be in the best position to give information and call up air support.

In principle, air support should be directed against distant targets out of range of artillery. However, the moral effect of air support upon defending troops is marked ; on occasion, therefore, it may be desirable to call for it immediately in front of the defending troops. This situation will usually arise when a position is threatened. Fighters armed with cannon guns are most effective against enemy transport and are likely to become increasingly effective against enemy A.F.Vs. These again should be concentrated against enemy forces which have penetrated the position.

7. All troops must realize that if they are to get effective aid from air forces, they must disclose their positions to their own aircraft by all available devices.

## 18. ADMINISTRATION IN THE DEFENCE

1. Before any attack develops, the normal system of administration will be maintained. This practice, however, should not be allowed to become a fixed routine. Times of delivery and routes should be altered periodically to make it difficult for the enemy effectively to harass the defence.

2. It is important that in the period before attack an administrative plan should be drawn up for the conduct of the defence. The success of this plan will largely depend on the thoroughness of the preparations made before battle is joined.

These preparations may include :—

- i. The stocking of defended localities with reserves of food, water, and munitions. As a guide it may be taken that, when adequate supplies are available, forward defended localities should usually be made self-sufficing for a period of four days. Stocks should be inspected and periodically turned over.
- ii. The reconnaissance and preparation of alternative routes for delivery. These preparations should be concealed from ground and air observation. In selecting alternative routes, the protection afforded to them by the tactical disposition of the troops should be considered.



- iii. Arrangements for alternative sites for administrative units, installations, and transport. However good the cover, sites which have been in use for a period will probably become known to the enemy. If extensive cover does not exist, vehicles should be dispersed in ragged formations and camouflaged. Isolated woods and villages will almost certainly be targets for dive bombing or for artillery fire.
- iv. Arrangements for withdrawal of such transport as may have been left with units.
- v. A plan for supply from the air, if the division should be isolated for a period. Detailed arrangements in this event must be made by higher formations, but the divisional staff must have plans ready to ensure that suitable places for dropping supplies are known and can be reported quickly.

3. Once battle is joined it is important that the administrative staff and services should be given early information of the progress of the battle. Only if they receive this information early can they plan the delivery of vital commodities, such as petrol and ammunition, which may directly affect the course of the battle. ~~For this purpose an administrative report centre is likely to be invaluable~~ Ref ATOL 4

4. For some period—possibly extending into days—it may be necessary to protect administrative echelons delivering supplies or recovering vehicles.

This protection may be provided by piqueting selected routes, or by escorts, or by a combination of both these methods.

If routes have been selected as laid down in para. 2, ii, above, protection will automatically be provided for portions of them. It may be necessary to supplement this protection by putting out additional posts between defended localities.

The divisional reconnaissance battalion will usually provide the most suitable escorts. It may be necessary to send escorts beyond the divisional boundaries to convoy supplies through areas infested by enemy who have been dropped from the air, or who have penetrated from a flank.

















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